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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit : 1745
Examiner : C. Chaney
Applicant : John C. Nardi
Appln. No. : 09/213,544
Filing Date : December 17, 1998
For : ALKALINE CELL HAVING A CATHODE INCORPORATING
ENHANCED GRAPHITE

Assistant Commissioner for Patents
Box AF
Washington, D.C. 20231

Dear Sir:

DECLARATION UNDER 37 C.F.R. §1.132

I, the undersigned, hereby declare:

1. I am the inventor of the above-identified patent application.
2. I have thoroughly reviewed U.S. Patent No. 5,482,798 ("the Mototani et al. patent").
3. It is my opinion that the Mototani et al. patent does not disclose sufficient information about the expanded graphite mentioned in the Mototani et al. patent to enable me to make a particular expanded graphite that would exhibit the kerosene absorption recited in the claim of my patent application. While the chemical composition of graphite may affect the kerosene absorption, there clearly are other characteristics and process related factors that affect the kerosene absorption, such as the type of starting graphite which may vary from one source of graphite to another source of graphite, the processing characteristics including the type and amount of acid impregnation and temperature and time of processing the expanded graphite, the capillary action between the expanded graphite particles, and the distance between the layers of the expanded graphite. Therefore, the chemical composition alone does not determine or suggest the kerosene absorption properties of an expanded graphite. The Mototani et al. patent fails to disclose sufficient details on the process of making the expanded graphite, the origin or

Applicant : John C. Nardi
Appln. No. : 09/213,544
Page : 2

characteristics of the starting graphite material, or specific characteristics involving capillary action between the particles and distance between the expanded graphite layers.

4. It is my opinion that the Mototani et al. patent does not disclose sufficient information about the expanded graphite mentioned in this patent to enable me to make a particular expanded graphite that would exhibit the kerosene absorption value recited in the claims of my patent application. The Mototani et al. patent fails to disclose sufficient details about the starting material, the process of making the expanded graphite including the type and amount of acid impregnation treatment, and temperature and time of processing, such that it would allow one of ordinary skill in the art to produce a specific expanded graphite, let alone one that exhibits an expanded graphite having a kerosene absorption of 2.2 to 3.5 ml/g for use in an electrochemical cell.

5. I have reviewed the Office Actions dated December 8, 1999 and June 14, 2000, and respectfully disagree with the Examiner's conclusion that, because the processes for forming expanded graphite disclosed by Applicant and the prior art are similar, the materials produced will be similar, and thus have similar physical properties, including kerosene absorption values, and the Examiner's further conclusion that if the prior art teaches the identical chemical structure, the properties Applicant discloses and/or claims are necessarily present. To demonstrate that different expanded graphites do not inherently exhibit kerosene absorption values in the range of 2.2 to 3.5 ml/g, I took several commercially available expanded graphites and measured the kerosene absorption values for each expanded graphite. The measurements for these expanded graphites are provided in the table below as samples B-D, and are compared to a sample of expanded graphite of the present invention, labeled as sample A. As evidenced by the measurements for samples A-D having varying kerosene absorption values, it is evident that different kerosene absorption values may be achieved for different expanded graphites. It is believed that the variance is due, at least in part, based on the starting material characteristic and the processing characteristics. Thus, the test data below clearly demonstrate that an expanded graphite may have a kerosene absorption not exhibited by the claimed absorption time of the

Applicant : John C. Nardi
Appln. No. : 09/213,544
Page : 3

present invention. Therefore, an expanded graphite made according to the Mototani et al. patent would not necessarily exhibit a kerosene absorption value of between 2.2 to 3.5 ml/g.

6. As clearly evidenced by the test data in the table below, the kerosene absorption value of an expanded graphite is not solely related to the chemical composition of the graphite. Thus, the presence of an expanded graphite alone does not suggest the kerosene absorption properties of the expanded graphite.

TABLE

Expanded Graphite	Microtrac Particle Size (μm)					BET Surf. Area (m^2/g)	Kero-sene Abs. (ml/g)	Scott Density (g/cm^3)	Tap Density (g/cm^3)
	d_{10}	d_{50}	d_{90}	Mean diameter of volume (mv)	Mean diameter of area (ma)				
Sample A	6.28	19.61	56.69	25.4	13.0	24.7	2.74	0.04	0.11
Sample B	1.61	3.94	7.91	12.37	7.61	26.6	1.83	0.05	0.089
Sample C	4.23	10.82	29.64	15.04	8.33	18.3	1.72	0.08	
Sample D	5.83	20.55	56.87	27.69	13.04	23.1	1.98	0.1	0.22

The undersigned hereby declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Sections 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

By: John C. Nardi
John C. Nardi

Oct. 16, 2000
Date